G.B. REED Shrimp Cruise 82-S-1 May 6-20, 1982 West Coast of Vancouver Island and Queen Charlotte Sound

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Canadian Data Report of Fisheries and

Aquatic Sciences No. 382

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G.B. REED SHRIMP CRUISE 82-S-1

MAY 6-20, 1982

WEST COAST OF VANCOUVER ISLAND AND QUEEN CHARLOTTE SOUND

by

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ABSTRACT

Boutillier, J. A. 1982. G.B. REED Shrimp Cruise 82-S-1. May 6-20, 1982. West coast of Vancouver Island and Queen Charlotte Sound. Can. Data Rep. Fish. Aquat. Sci. 382: iii + 56 p.

This report summarizes the information obtained during the May 1982, shrimp biomass survey off the west coast of Vancouver Island and in Queen Charlotte Sound. This survey is one of a continuing series of spring surveys conducted aboard the research vessel G.B. REED, which is used to collect information on the biomass and distribution of pink shrimp Pandalus jordani. This report presents detailed catch records and the resulting evaluations from this cruise, including a section on resource allocation.

Key words: Pink shrimp, Pandalus jordani, biomass, west coast of Vancouver Island, Queen Charlotte Sound.

RESUMÉ

Boutillier, J. A. 1982. G.B. REED Shrimp Cruise 82-S-1. May 6-20, 1982. West coast of Vancouver Island and Queen Charlotte Sound. Can. Data Rep. Fish. Aquat. Sci. 382: iii + 56 p.

Le présent rapport résume les données recueillies au cours de l'étude de la biomasse des crevettes au large de la côte ouest de l'île Vancouver et dans le bassin Reine-Charlotte, en mai 1982. Ce levé fait partie d'une série permanente de levés printaniers menés par le bateau de recherche G.B. REED et visant à recueillir des données sur la biomasse et la répartition de la crevette océanique, Pandalus jordani. Le rapport présente des données détaillées sur les prises et leurs évaluations et comprend une section sur la répartition des ressources.

Mots-clés: crevette océanique, Pandalus jordani, biomasse, côte ouest de l'île Vancouver, bassin Reine-Charlotte.

INTRODUCTION

This document summarizes the data collected on the May 1982 G.B. REED shrimp biomass survey of shrimp grounds off Tofino and Nootka Sound, and in Queen Charlotte Sound. The survey was designed to collect data for estimating the total biomass and distributions of the smooth pink shrimp, Pandalus jordani. In addition to the trawl survey, oceanographic temperature observations were collected.

SURVEY METHODS AND FISHING GEAR

The biomass trawl survey was carried out in all three areas using a standard 61-ft, high-rising, N.M.F.S. shrimp sampling trawl. This trawling gear has been described in detail in a previous Data Report.[1] The temperature observations were made using expendable bathythermographs (XBTs).

The trawl locations for the biomass of Tofino and Nootka grounds were established on a systematic grid pattern based on Loran C blocks. Tows were made diagonally through adjacent 5990-X blocks along 5990-Y lines. Successive 5990-Y lines were 20 microseconds apart. The trawl locations for the Queen Charlotte Sound biomass survey were made on a Loran C grid in which tows were made diagonally through 5990-X blocks 20 microseconds apart along successive 5990-Y lines 15 microseconds apart. Variations in the grid patterns occurred when exploring new areas, avoiding bad bottom, or being set off by the tide and wind.

Tows lasted 30 min and covered a range of distances from 1.2-1.9 M. Upon completion of each tow, the large fish were removed from the invertebrates, and small fish was put into tubs and weighed. One tub was then sorted into shrimp and scrap, the percentage of shrimp by weight per tub was determined, and the total shrimp catch for the tow was then extrapolated. Random samples of shrimp were weighed and the number of shrimp per kilogram determined. The samples were then sexed and measured.

RESULTS

In total, 99 trawl tows were completed: 57 on the Tofino grounds, 25 on the Nootka grounds, and 17 in Queen Charlotte Sound. Temperature observations were made in conjunction with 37 of the trawl tows.

Detailed bridge logs, catch records, and temperature observations, by tow, appear in Appendix Table 1.

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[1] Fisheries and Marine Service Data Report No. 37.

TOFINO GROUNDS

The Tofino shrimp ground is a fishing area which lies offshore from the west coast of Vancouver Island between 48°40' and 49°15'. The concentration of shrimp for this survey was found to be distributed in four areas over grounds.

The major area of concentration was a 27 M^2 area located in the southern portion of the ground from Loran C 5990-Y-29145 and 5990-Y-29205 between 68 and 82 fathoms (Fig. 4). The catch rates in this area ranged from 7 to 653 kg per half-hour towed.

The next major concentration was found in a 16 M^2 located in the northern portion of the grounds from Loran C 5990-Y-29285 to 5990-Y-29325 between 67 and 79 fathoms (Fig. 5). The catch rates in this area ranged from 11 to 180 kg per half-hour towed.

The remaining two concentrations of shrimp were both small 5 M^2 areas located at the southern (Fig. 4) and northern (Fig. 5) extremes of the ground. The catch rates for the southern and northern areas averaged 3 and 15 kg half-hour towed respectively.

The total combined shrimp biomass for all four areas was estimated at 813 metric tonnes which is only 53% of the 1981 estimated biomass. Within these areas the shrimp ranged in size from 153 to 476 shrimp per kilogram with a weighted mean count of 195 shrimp per kilogram.

NOOTKA GROUNDS

The Nootka ground is a fishing area which lies offshore off the west coast of Vancouver Island between 49°15' and 49°35'. During this survey the shrimp were only located in one 26 M^2 area in the central portion of the grounds (Fig. 7) from Loran C 5990-Y-29465 to 5990-Y-29525 between 68 and 77 fathoms.

The estimated biomass for the shrimp concentration in this area was 171 metric tonnes which was only 12% of the 1981 estimated biomass. Within this area the shrimp ranged in size from 166 to 264 shrimp per kilogram with a weighted mean count of 246 shrimp per kilogram.

WEST COAST VANCOUVER ISLAND

The total catch for the survey off the west coast of Vancouver Island is summarized by important species below:

Total catch by species for the cruise.
Total number of hauls for the cruise = 82

Species	Kg	Percent
Pink (jordani)	1612	15.58
Sun starfish	1	0.01
Brittle stars	8	0.08
Sea urchins	3	0.03
Heart urchin	4	0.04
Sea cucumber	36	0.35
Box crab	3	0.03
Dab (Pacific)	41	0.40
Dover sole	30	0.29
English sole	8	0.08
Flathead sole	426	4.12
Halibut	68	0.66
Petrale sole	9	0.09
Rex sole	80	0.77
Slender sole	99	0.96
Turbot	105	1.01
Rockfish	37	0.36
S. borealis	2	0.02
S. brevispinis	34	0.33
S. crameri	31	0.30
S. elongatus	5	0.05
S. flavidus	49	0.47
S. paucispinis	278	2.69
S. pinniger	185	1.79
S. proriger	14	0.14
S. ruberrimus	10	0.10
S. zacentrus	12	0.12
Blackcod	29	0.28
Cymatogaster	5	0.05
Eulachon	2602	25.15
Hake	4	0.04
Herring	76	0.73
Lingcod	848	8.20
Pacific cod	89	0.86
Walleye pollock	279	2.70
Sculpins	1	0.01
Shad	4	0.04
Tomcod	137	1.32
Dogfish	3046	29.44
Ratfish	1	0.01
Skates	26	0.25

QUEEN CHARLOTTE SOUND

The survey in Queen Charlotte Sound was conducted in the N.E. and N.W. corners of the Goose Island grounds (Fig. 8). Shrimp were caught in 7 of the 10 tows made in the N.E. corner grounds with the catch rates varying from

2 to 46 kg per half-hour towed. Shrimp were caught in 5 of the 7 tows made in the N.W. corner grounds with the catch rates varying from 4 to 13 kg per half-hour towed. The shrimp counts ranged from 182-250 shrimp per kilogram with the entire area having a weighted mean count of 222 shrimp per kg. In comparing the size of shrimp from this survey with the mean count of 312 shrimp per kg in the 1981 survey, it can at first glance be speculated that there is a paucity of juvenile shrimp in the catches of this year's survey.

Biomass estimates were not attempted for these grounds since time constraints prevented conducting sufficient survey trawls to delineate the total area of shrimp concentrations. A non-parametric Mann-Whitney U test was carried out comparing the 1982 tows (number of shrimp per M towed) with the 1981 and 1980 tows for both the N.E. and N.W. corners of the Goose Island grounds. The tests indicate that the catch rates for the N.E. Goose Island grounds have not changed significantly over the last three surveys, but that the catch rates for the N.W. grounds were significantly higher (at a 0.05 level of significance) in 1981 than in either the 1982 or 1980. The comparison between 1982 and 1980 catch rates for the N.W. grounds showed no significant change.

The total catch for the survey in Queen Charlotte Sound is summarized by important species below:

Total catch by species for the cruise.
Total number of hauls for the cruise = 17

Species	Kg	Percent
Pink (*jordani*)	133	5.47
Sidestripe	1	0.04
Sponges	6	0.25
Gonatus magister	1	0.04
Heart urchin	1	0.04
Sea cucumber	7	0.29
Dover sole	70	2.88
English sole	1	0.04
Flathead sole	25	1.03
Halibut	55	2.26
Turbot	888	36.51
Rockfish	4	0.16
S. aleutianus	6	0.25
S. alutus	573	23.56
S. babcocki	45	1.85
S. brevispinis	11	0.45
S. entomelas	1	0.04
S. flavidus	8	0.33
S. helvomaculatus	1	0.04
S. pinniger	6	0.25
S. proriger	51	2.10
Seb. alascanus	5	0.21

Species	Kg	Percent
Blackcod	92	3.78
Eulachon	46	1.89
Herring	8	0.33
Lingcod	44	1.81
Pacific cod	4	0.16
Walleye pollock	7	0.29
Dogfish	292	12.01
Ratfish	15	0.62
Skates	25	1.03

TEMPERATURE OBSERVATIONS

A total of 37 temperature observations were taken: 20 on the Tofino ground, 8 on the Nootka ground, and 9 in Queen Charlotte Sound. Of the observations made the bottom temperatures ranged from 7.2 to 8.3°C on the Tofino ground, 6.3 to 7.8°C on the Nootka ground, and 6.0 to 7.6°C in Queen Charlotte Sound. Shrimp concentrations appeared to be associated with temperatures between 6.8 and 7.8°C on the Tofino ground, 6.5 and 7.8°C on the Nootka ground, and 6.0 and 7.6°C in Queen Charlotte Sound.

RESOURCE ALLOCATION

Generally the Tofino and Nootka fisheries are managed on a quota system. In order to set precautionary total allowable catches for the areas, the estimated biomasses are applied to exponential yield at equilibrium models. The resulting TACs are implemented on May 1 of the current year, with the areas remaining open until the quota is taken or until May 1 of the following year when new TACs are recommended.

The recommended quota for the Tofino fishery was set at 113 metric tonnes. No quota was recommended for either the Nootka ground or Queen Charlotte Sound. These areas are to remain open to fishing as it was felt that information obtained from a commercial fishery might help explain the apparent 1981-82 decline in stocks. To date any attempted fishery in the areas has met with a lack of success.

ACKNOWLEDGMENTS

Thanks are extended to Captain Alf Fletcher and the crew of the G.B. REED for their assistance and cooperation. Steve Head, Debbie Marback, and Jim Lane provided the technical assistance at sea and in the office.

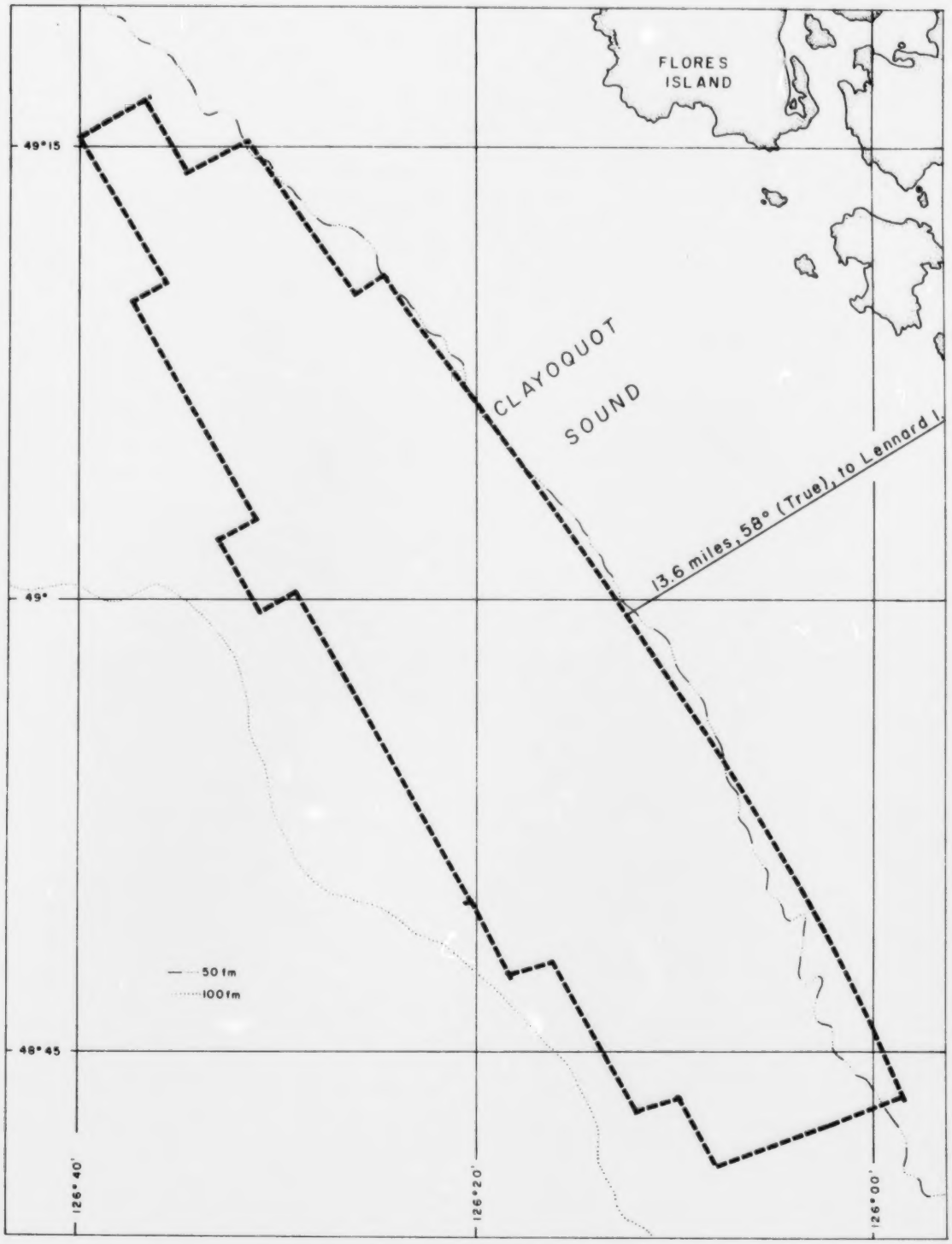


Fig. 1. Chart of fishing area of Tofino grounds.

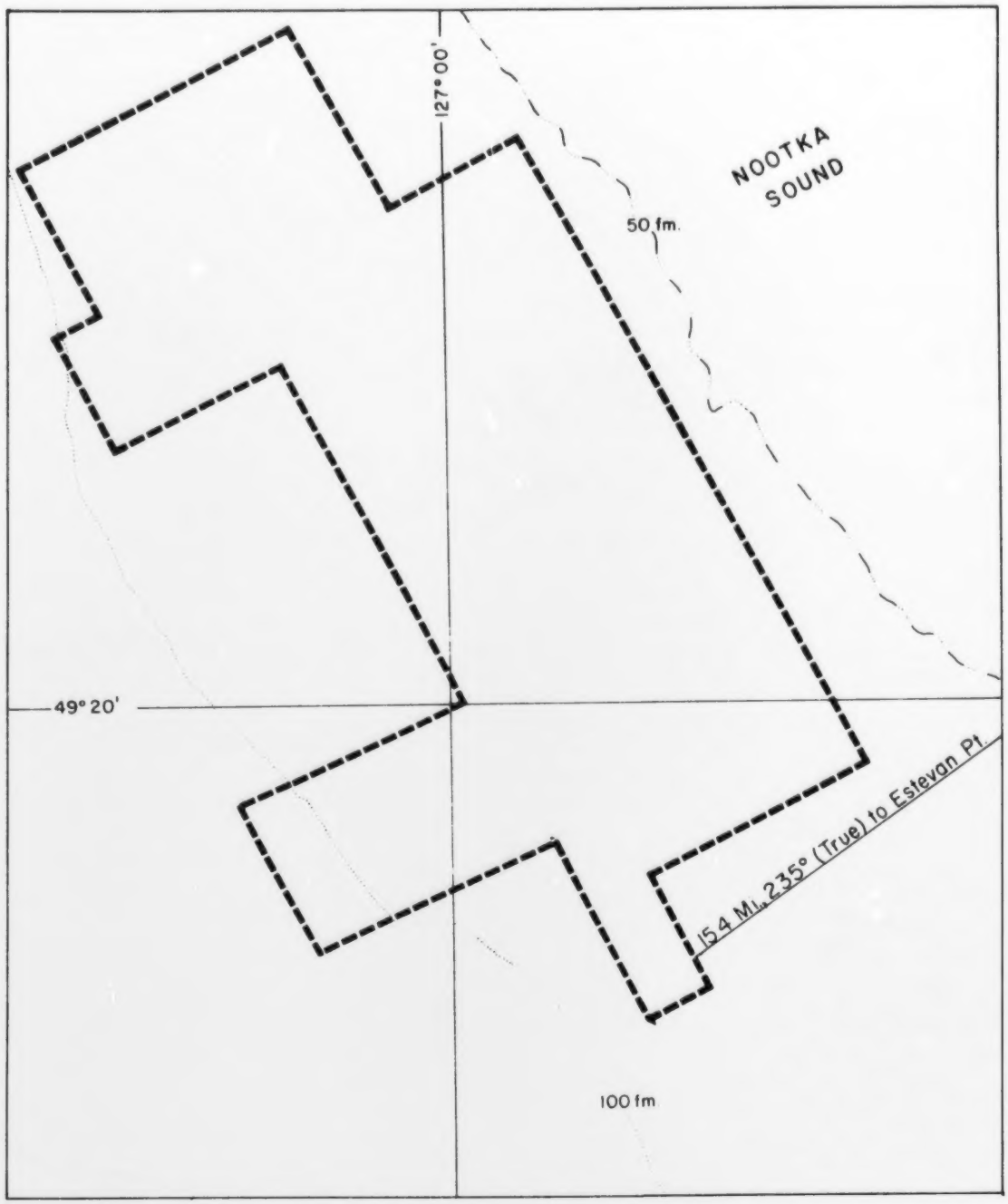


Fig. 2. Chart of fishing area of Nootka grounds.

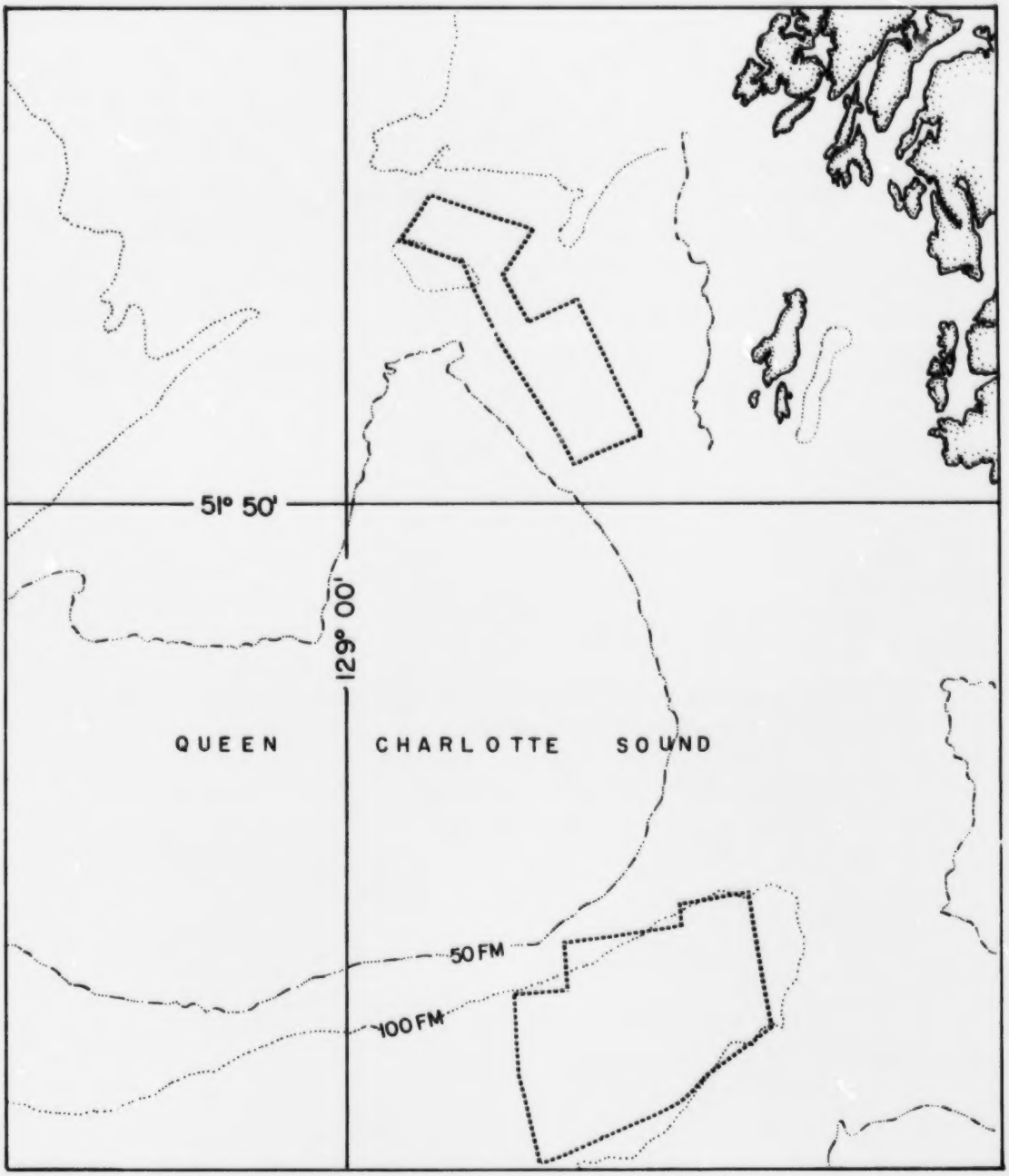


Fig. 3. Chart of fishing area of Queen Charlotte Sound.

Fig. 4. Tow locations and boundary of shrimp concentrations on the southern portion of Tofino grounds.

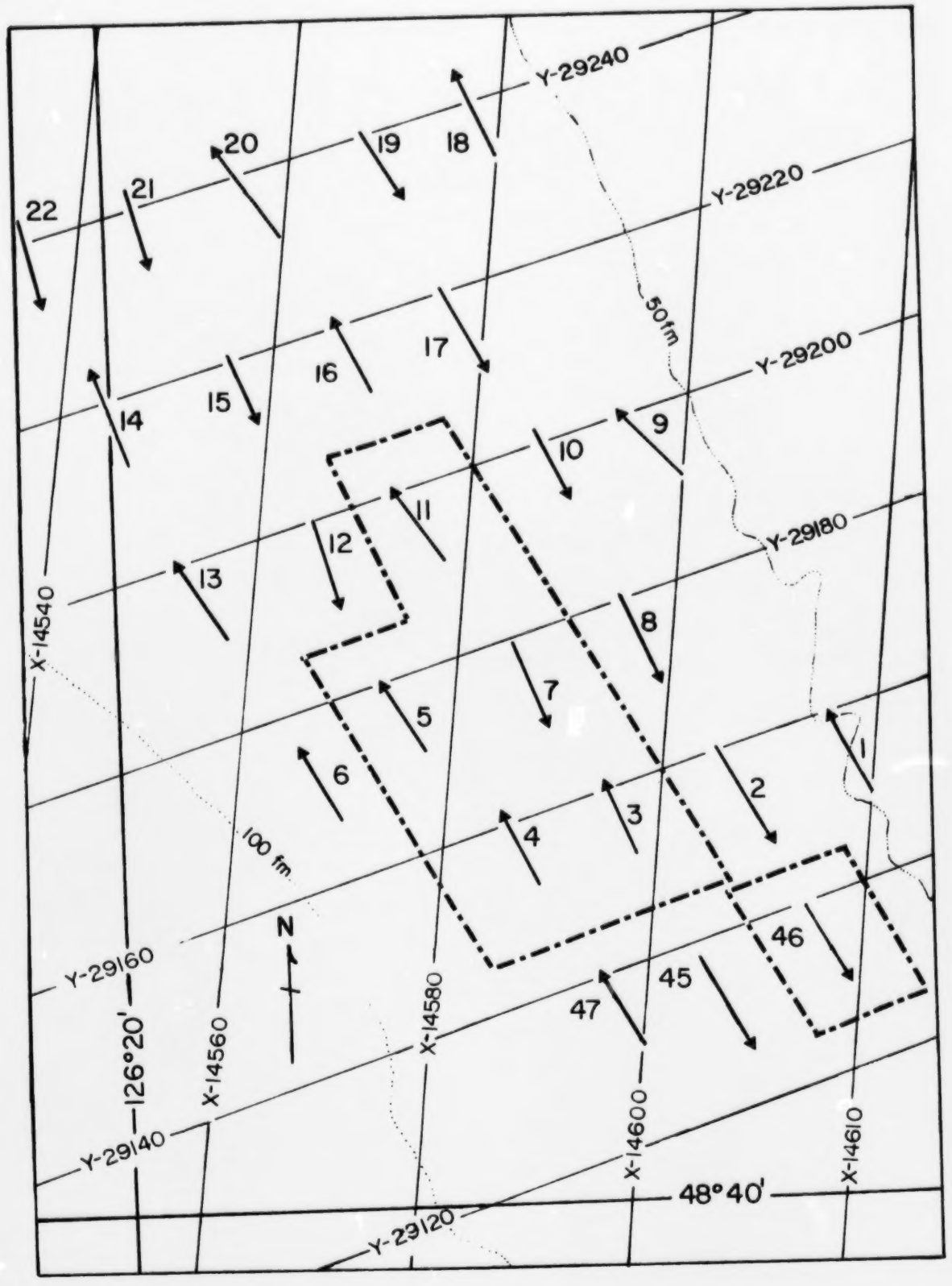

Y-29240
Y-29220
Y-29200
Y-29180
Y-29160
Y-29140
Y-29120
X-14540
X-14560
X-14580
X-14600
X-14610
126°20'
48°40'
50 fm
100 fm
N
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
45
46
47

Fig. 5. Two locations and boundary of shrimp concentrations on the northern portion of Tofino grounds.

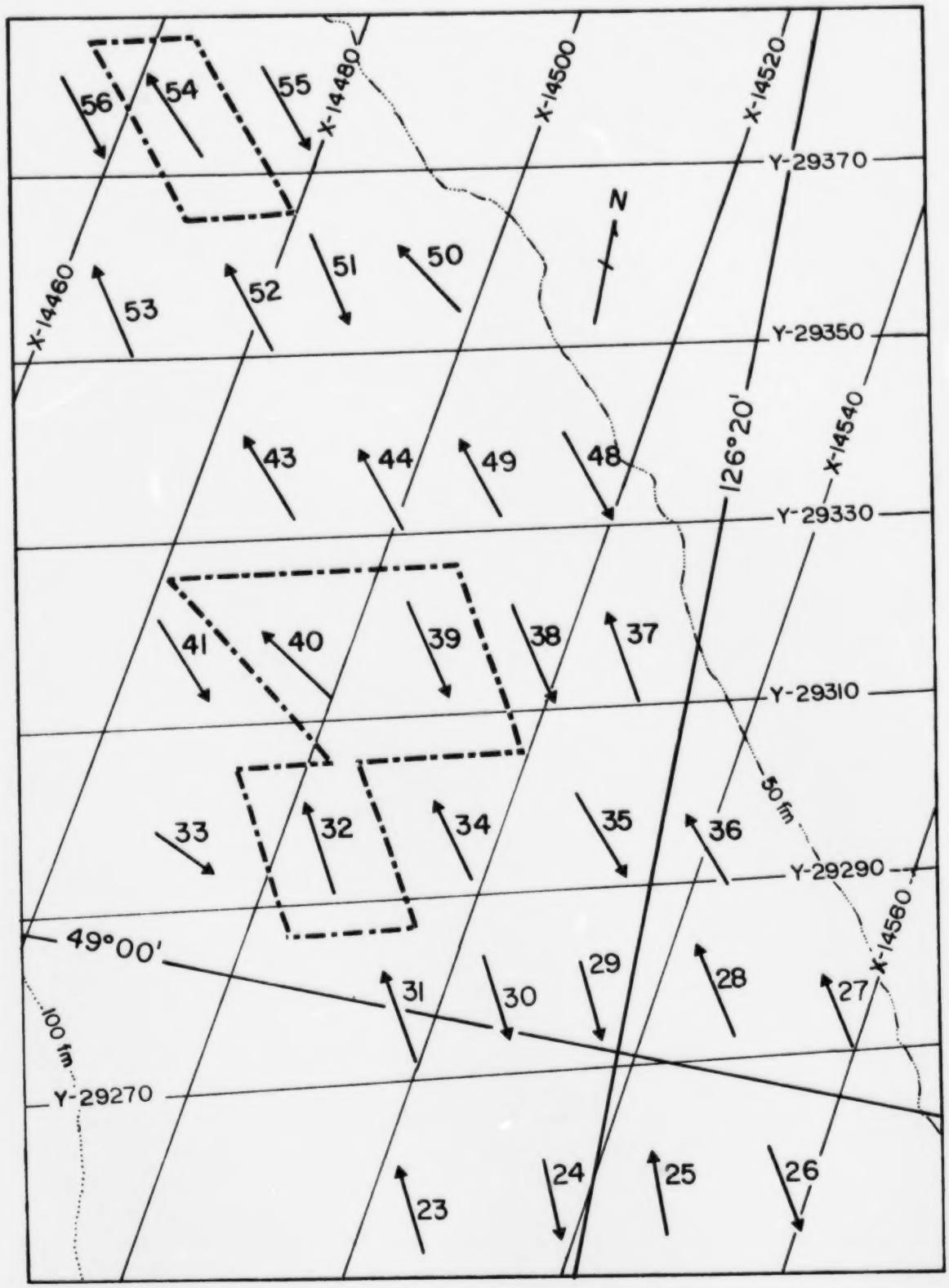

X-14460
X-14480
X-14500
X-14520
X-14540
X-14560
Y-29370
Y-29350
Y-29330
Y-29310
Y-29290
Y-29270
126°20'
49°00'
50 fm
100 fm
N
56
54
55
53
52
51
50
43
44
49
48
41
40
39
38
37
33
32
34
35
36
31
30
29
28
27
23
24
25
26

Fig. 6. Tow locations on the southern portion of Nootka grounds.

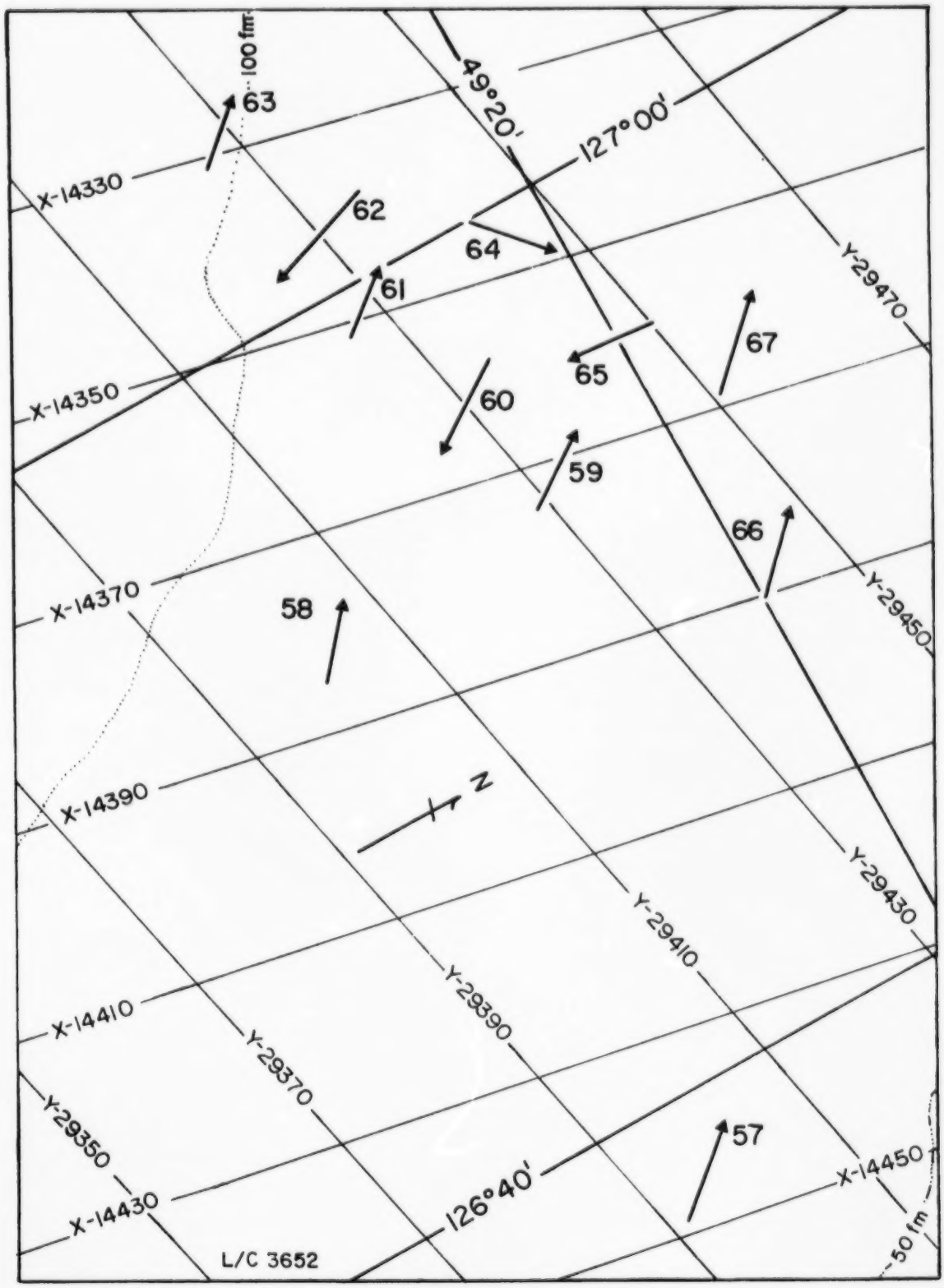

100 fm
63
49°20'
127°00'
X-14330
62
64
61
Y-29470
X-14350
65
67
60
59
66
X-14370
58
Y-29450
N
X-14390
Y-29430
Y-29410
Y-29390
X-14410
Y-29370
Y-29350
57
X-14450
X-14430
126°40'
50 fm
L/C 3652

Fig. 7. Tow locations and boundary of shrimp concentrations on the northern portion of Nootka grounds.

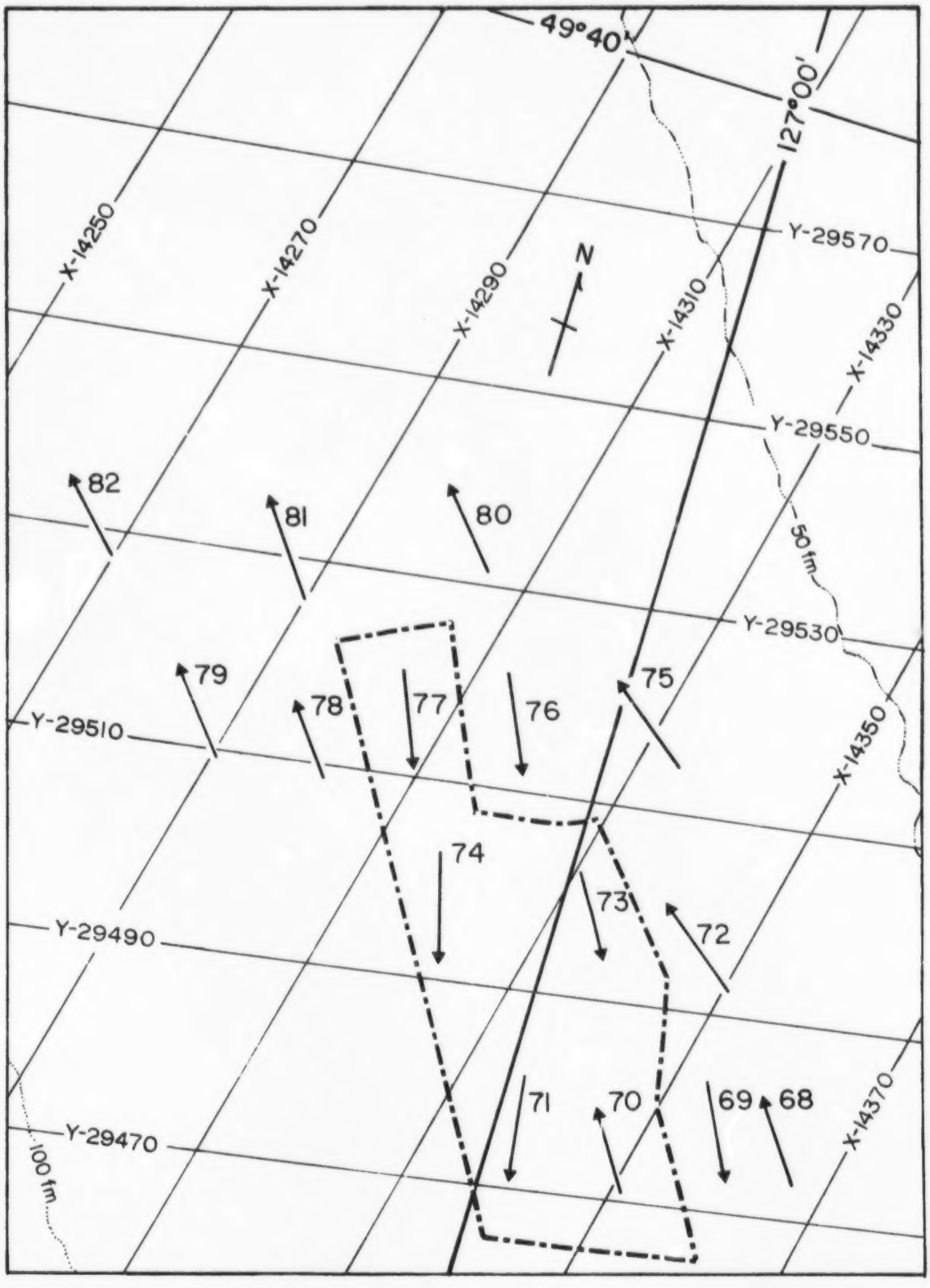
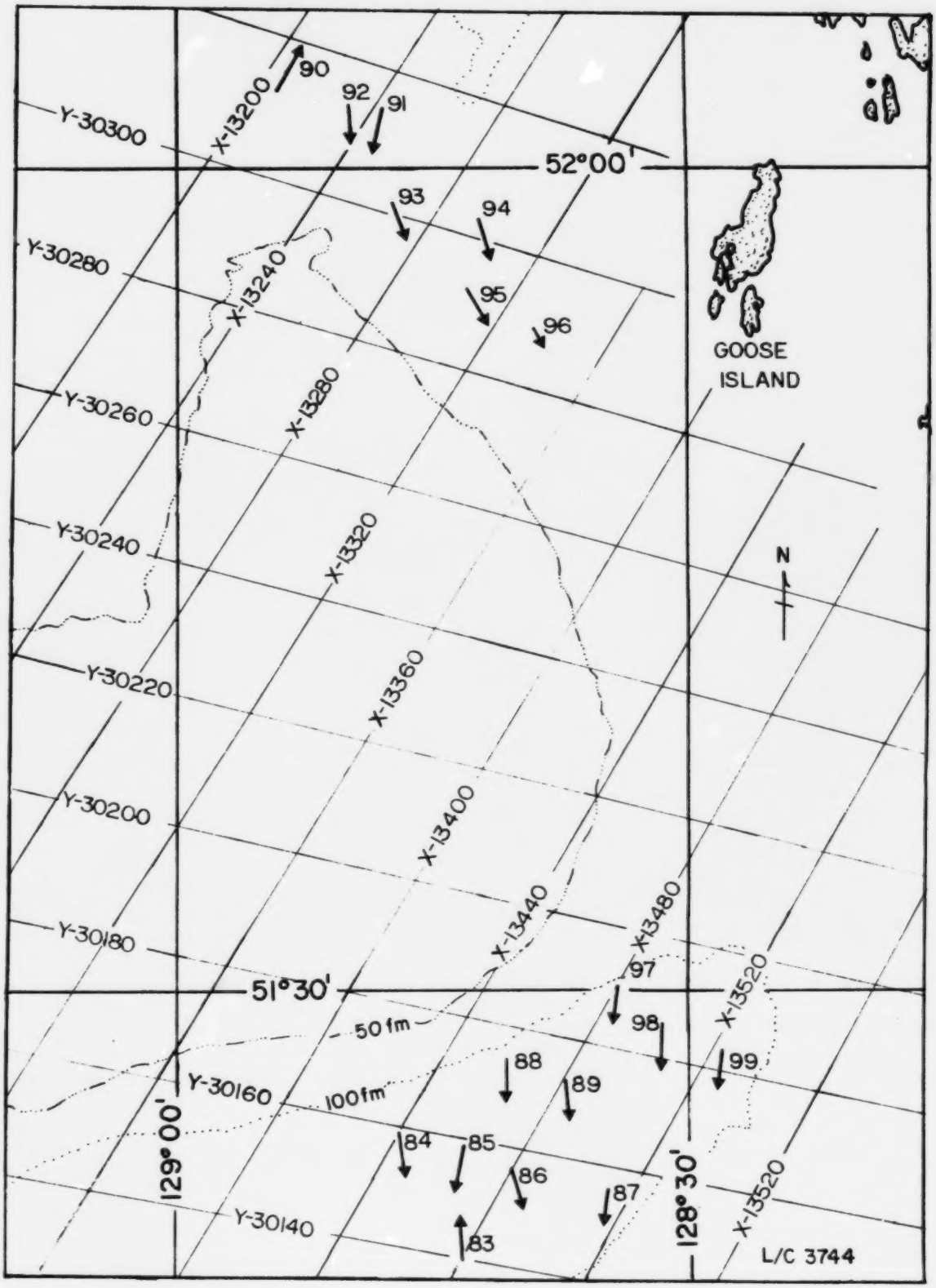

49°40'
127°00'
X-14250
X-14270
X-14290
X-14310
X-14330
X-14350
X-14370
Y-29570
Y-29550
Y-29530
Y-29510
Y-29490
Y-29470
N
82
81
80
79
78
77
76
75
74
73
72
71
70
69
68
50 fm
100 fm

Fig. 8. Tow locations in Queen Charlotte Sound.


Y-30300
X-13200
90
92
91
52°00'
93
94
Y-30280
X-13240
95
96
GOOSE
ISLAND
Y-30260
X-13280
Y-30240
X-13320
N
Y-30220
X-13360
Y-30200
X-13400
X-13440
X-13480
Y-30180
51°30'
97
X-13520
50 fm
98
99
Y-30160
100 fm
88
89
129° 00'
84
85
86
87
128° 30'
X-13520
Y-30140
83
L/C 3744

APPENDIX TABLE 1
FISHING LOG FOR G.B.REED, MAY 1982
SEE FOOTNOTE AT END OF TABLE FOR EXPLANATION OF TERMS

HAUL NO.	1	2	3	4	5	6
DATE	MAY 6	MAY 6	MAY 6	MAY 6	MAY 6	MAY 6
AREA	CLSD	CLSD	CLSD	CLSD	CLSD	CLSD
TIME START (PST)	730	843	958	1130	1250	1410
DURATION(HR.MIN)	.30	.30	.29	.30	.30	.30
START N. LAT. (DEG)	48	48	48	48	48	48
(MIN)	46.2	46.9	45.3	44.9	47.1	47.1
W. LONG. (DEG)	126	126	126	126	126	126
(MIN)	2.4	6.2	8.1	10.3	12.9	15.8
DIRECTION (DEG.TRUE)	328	145	353	330	330	150
FINISH N. LAT. (DEG)	48	48	48	48	48	48
(MIN)	47.5	45.4	46.5	46.1	48.2	45.9
W.LONG. (DEG)	126	126	126	126	126	126
(MIN)	3.5	4.8	8.9	11.3	13.9	14.8
DISTANCE NAUT. MI.	1.5	1.8	1.4	1.4	1.4	1.3
DEPTH (FATHOMS)	49- 50	58- 58	68- 69	76- 76	82- 82	90- 90
SEE FIGURE NO.						
SURFACE TEMP(DEG.C)	10.2	..	..	10.5	..	..
BOTTOM TEMP.(DEG.C)	8.3	..	..	7.3	..	..
TYPE OF GEAR	8	8	8	8	8	8
TOTAL CATCH (KG)	25	10	122	143	290	56
REMARKS	USABLE	USABLE	USABLE	USABLE	USABLE	USABLE

APPENDIX TABLE 1 CONTINUED

HAUL NO.	1	2	3	4	5	6
DATE	MAY 5	MAY 6	MAY 5	MAY 6	MAY 6	MAY 6
AREA	CLSD	CLSD	CLSD	CLSD	CLSD	CLSD
CATCH TOTAL (KG)	26	10	122	143	290	56
SHRIMP						
PINK (JORDANI)	..	T	36	7	99	T
NUM/KG	..	700	210	134	153	153
SIDESTRIPE	..	..	..	..	..	..
NUM/KG	..	..	..	..	..	..
OTHER SHRIMP	..	..	..	..	..	..
INVERTBRATES						
SEA CUCUMBER	..	..	..	..	T	T
OTHERS	T	T	T	T	..	T
FLATFISH						
DOVER SOLE	..	..	..	..	..	..
FLATHEAD SOLE	..	..	..	..	T	2
HALIBUT	7	..	..	..	7	..
SLENDER SOLE	..	..	..	..	..	..
TURBOT	..	..	..	..	T	T
OTHERS	T	T	1	..	..	..
ROCKFISH						
S. ALUTUS	..	..	..	..	..	..
S. FLAVIDUS	..	..	..	..	..	..
S. PALCISPINIS	..	..	..	..	..	..
S. PINNIGER	..	..	..	..	..	..
S. PRORIGER	..	..	..	..	..	..
OTHERS	..	..	T	..	4	T
OTHER ROUNDFISH						
BLACKCOD	..	T	..	..	..	2
POLACHON	..	..	80	110	171	52
LINGCOD	8	10	22	5	..	..
PACIFIC TOMCOD	..	T	..	..	..	..
WALLEYE POLLOCK	..	T	2	19	8	..
OTHERS	T	T	1	T	T	T
SELACHI						
DOGFISH	11	..	..	2	2	..
OTHERS	..	..	..	..	..	..

APPENDIX TABLE 1 CONTINUED

HAUL NO.	7	8	9	10	11	12
DATE	MAY 6	MAY 6	MAY 9	MAY 9	MAY 9	MAY 9
AREA	CLSD	CLSD	CLSD	CLSD	CLSD	CLSD
TIME START (PST)	1600	1730	719	825	931	1110
DURATION(HR.MIN)	.30	.30	.30	.30	.30	.30
START N. LAT. (DEG)	48	48	48	48	48	48
(MIN)	48.7	49.4	51.2	52.0	50.0	50.7
W. LONG. (DEG)	126	126	126	126	126	126
(MIN)	10.3	8.3	6.7	10.2	12.4	15.4
DIRECTION (DEG.TRUE)	160	150	318	150	326	160
FINISH N. LAT. (DEG)	48	48	48	48	48	48
(MIN)	47.3	48.0	52.2	50.8	51.1	49.3
W.LONG. (DEG)	126	126	126	126	126	126
(MIN)	10.0	7.3	9.2	9.3	13.5	14.8
DISTANCE NAUT. MI.	1.5	1.6	1.4	1.3	1.4	1.4
DEPTH (FATHOMS)	70- 70	60- 60	50- 52	60- 60	70- 70	80- 82
SEE FIGURE NO.						
SURFACE TEMP(DEG.C)	10.6	..	..	9.8	..	..
BOTTOM TEMP.(DEG.C)	7.4	..	..	7.7	..	..
TYPE OF GEAR	8	8	8	8	8	8
TOTAL CATCH (KG)	802	188	4	90	240	23
REMARKS	USABLE	USABLE	USABLE	USABLE	USABLE	USABLE

APPENDIX TABLE 1 CONTINUED

HAUL NO.	7	8	9	10	11	12
DATE	MAY 6	MAY 6	MAY 9	MAY 9	MAY 9	MAY 9
AREA	CLSD	CLSD	CLSD	CLSD	CLSD	CLSD
CATCH TOTAL (KG)	802	188	4	90	240	23
SHRIMP						
PINK (JORDANI)	653	..	..	..	142	..
NUM/KG	196	..	..	..	167	..
SIDESTRIPE	..	..	..	..	..	..
NUM/KG	..	..	..	..	..	..
OTHER SHRIMP	..	..	..	T	..	..
INVERTBRATES						
SEA CUCUMBER	..	..	..	..	..	..
OTHERS	T	..	..	T	T	..
FLATFISH						
DOVER SOLE	..	..	..	..	..	..
FLATHEAD SOLE	..	..	..	..	T	T
HALIBUT	..	..	..	..	..	..
SLENDER SOLE	..	..	..	..	T	..
TURBOT	..	..	..	..	..	..
OTHERS	..	T	T	..	..	..
ROCKFISH						
S. ALUTUS	..	..	..	..	..	..
S. FLAVIDUS	..	..	..	..	..	..
S. PAUCISPINIS	..	..	..	..	..	..
S. PINNIGER	..	..	..	..	..	..
S. PRORIGER	..	..	..	..	..	..
OTHERS	1	..	..	..	T	2
OTHER ROUNDFISH						
BLACKCOD	2	..	1	T	..	..
EULACHON	134	27	..	..	48	8
LINGCOD	..	7	1	5	..	..
PACIFIC TOMCOD	..	T	T	T	..	..
WALLEYE POLLOCK	8	4	..	T	10	4
OTHERS	..	2	2	T	T	T
SELACHI						
DOGFISH	4	148	..	85	40	9
OTHERS	..	..	..	..	..	T

APPENDIX TABLE 1 CONTINUED

HAUL NO.	13	14	15	16	17	18
DATE	MAY 9	MAY 9	MAY 9	MAY 9	MAY 9	MAY 10
AREA	CLSD	CLSD	CLSD	CLSD	CLSD	CLSD
TIME START (PST)	1210	1315	1425	1608	1714	715
DURATION(HR.MIN)	.30	.30	.30	.30	.28	.30
START N. LAT. (DEG)	48	48	48	48	48	48
(MIN)	48.9	51.6	53.3	52.6	54.2	56.2
W. LONG. (DEG)	126	126	126	126	126	126
(MIN)	17.5	19.7	17.3	14.0	12.3	10.9
DIRECTION (DEG.TRUE)	350	330	156	328	152	336
FINISH N. LAT. (DEG)	48	48	48	48	48	48
(MIN)	50.2	53.2	52.2	53.8	52.8	57.6
W.LONG. (DEG)	126	126	126	126	126	126
(MIN)	18.7	20.5	16.6	14.9	11.2	11.8
DISTANCE NAUT. MI.	1.5	1.8	1.3	1.4	1.5	1.5
DEPTH (FATHOMS)	90- 91	80- 85	76- 78	70- 69	62- 60	54- 54
SEE FIGURE NO.						
SURFACE TEMP(DEG.C)	10.1	..	..	10.2	..	10.1
BOTTOM TEMP.(DEG.C)	6.8	..	..	7.5	..	8.0
TYPE OF GEAR	8	8	8	8	8	8
TOTAL CATCH (KG)	37	75	71	115	62	201
REMARKS	USABLE	USABLE	USABLE	USABLE	USABLE	NET TORN USABLE

APPENDIX TABLE 1 CONTINUED

HAUL NO.	13	14	15	16	17	18
DATE	MAY 9	MAY 9	MAY 9	MAY 9	MAY 9	MAY 10
AREA	CLSD	CLSD	CLSD	CLSD	CLSD	CLSD
CATCH TOTAL (KG)	37	75	71	115	62	201
SHRIMP						
PINK (JORDANI)	..	T	T	..	..	..
NUM/KG	..	..	..	..	..	..
SIDESTRIPE	..	..	..	..	..	..
NUM/KG	..	..	..	..	..	..
OTHER SHRIMP	..	..	..	..	..	T
INVERTBRATES						
SEA CUCUMBER	..	..	..	..	..	..
OTHERS	..	T	..	T	..	7
FLATFISH						
DOVER SOLE	..	..	..	..	..	..
FLATHEAD SOLE	T	1	T	..	..	..
HALIBUT	..	..	..	..	..	..
SLENDER SOLE	T	T	..	..	..	..
TURBOT	1	1	1	..	..	..
OTHERS	..	..	..	..	..	T
ROCKFISH						
S. ALUTUS	..	..	..	..	..	..
S. FLAVIDUS	T	..	..	..	2	..
S. PAUCISPINIS	..	..	..	..	..	4
S. PINNIGER	..	..	..	..	..	59
S. PRORIGER	1	..	..	..	..	..
OTHERS	T	22	T	1	..	6
OTHER ROUNDFISH						
BLACKCOD	..	..	1	..	1	..
EULACHON	35	51	18	10	..	..
LINGCOD	..	..	..	6	15	124
PACIFIC TOMCOD	..	..	..	..	..	..
WALLEYE POLLOCK	..	T	T	46	..	..
OTHERS	..	T	T	T	..	1
SELACHI						
DOGFISH	..	..	51	52	43	..
OTHERS	..	T	..	..	..	..

APPENDIX TABLE 1 CONTINUED

HAUL NO.	19	20	21	22	23	24
DATE	MAY 10	MAY 10	MAY 10	MAY 10	MAY 10	MAY 10
AREA	CLSD	CLSD	CLSD	CLSD	CLSD	CLSD
TIME START (PST)	938	1110	1220	1350	1505	1624
DURATION(HR.MIN)	.30	.30	.30	.30	.32	.30
START N. LAT. (DEG)	48	48	48	48	48	48
(MIN)	56.7	55.1	55.9	55.5	56.4	58.1
W. LONG. (DEG)	126	126	126	126	126	126
(MIN)	13.9	15.9	19.5	22.0	23.5	21.2
DIRECTION (DEG.TRUE)	150	320	150	150	320	150
FINISH N. LAT. (DEG)	48	48	48	48	48	48
(MIN)	55.6	56.5	54.7	54.1	57.6	56.9
W.LONG. (DEG)	126	126	126	126	126	126
(MIN)	13.0	17.4	19.0	21.5	24.4	20.4
DISTANCE NAUT. MI.	1.3	1.7	1.3	1.5	1.4	1.3
DEPTH (FATHOMS)	61- 61	68- 69	76- 76	82- 84	83- 83	76- 76
SEE FIGURE NO.						
SURFACE TEMP(DEG.C)	..	..	10.2	..	..	..
BOTTOM TEMP.(DEG.C)	..	..	5.3	..	..	..
TYPE OF GEAR	8	8	8	8	8	8
TOTAL CATCH (KG)	47	351	225	90	357	145
REMARKS	USABLE	USABLE	USABLE	USABLE	USABLE	USABLE

APPENDIX TABLE 1 CONTINUED

HAUL NO.	19	20	21	22	23	24
DATE	MAY 10	MAY 10	MAY 10	MAY 10	MAY 10	MAY 10
AREA	CLSD	CLSD	CLSD	CLSD	CLSD	CLSD
CATCH TOTAL (KG)	47	351	225	90	357	145
SHRIMP						
PINK (JORDANI)	..	T	T	..	T	..
NUM/KG	..	..	..	..	..	..
SIDESTRIPE	..	..	..	..	..	..
NUM/KG	..	..	..	..	..	..
OTHER SHRIMP	..	T	..	..	..	..
INVERTBRATES						
SEA CUCUMBER	..	..	..	..	15	..
OTHERS	..	T	..	..	6	T
FLATFISH						
DOVER SOLE	T	..	..	T	20	T
FLATHEAD SOLE	T	3	4	12	100	20
HALIBUT	..	..	..	..	..	..
SLENDER SOLE	3	T	..	T	10	1
TURBOT	T	..	1	1	20	T
OTHERS	3	..	T	..	10	1
ROCKFISH						
S. ALUTUS	..	..	..	..	..	..
S. FLAVIDUS	..	..	..	..	..	..
S. PAUCISPINIS	..	..	..	..	..	..
S. PINNIGER	..	..	..	..	..	..
S. PRORIGER	..	..	..	..	..	..
OTHERS	..	T	1	8	..	6
OTHER ROUNDFISH						
BLACKCOD	T	..	..	1	T	..
EULACHON	T	24	30	16	..	15
LINGCOD	15	21	3	..	5	9
PACIFIC TOMCOD	..	..	..	..	..	..
WALLEYE POLLOCK	..	2	1	..	..	2
OTHERS	4	T	3	12	T	T
SELACHI						
DOGFISH	22	301	182	40	162	91
OTHERS	..	T	..	..	9	..

APPENDIX TABLE 1 CONTINUED

HAUL NO.	25	26	27	28	29	30
DATE	MAY 10	MAY 10	MAY 11	MAY 11	MAY 11	MAY 11
AREA	CLSD	CLSD	CLSD	CLSD	CLSD	CLSD
TIME START (PST)	1738	1845	720	901	1012	1145
DURATION(HR.MIN)	.29	.30	.30	.30	.30	.30
START N. LAT. (DEG)	48	48	49	49	49	49
(MIN)	57.4	59.0	0.7	0.5	1.2	1.0
W. LONG. (DEG)	126	126	126	126	126	126
(MIN)	18.1	16.2	14.7	17.5	21.3	23.5
DIRECTION (DEG.TRUE)	330	151	331	332	157	140
FINISH N. LAT. (DEG)	48	48	49	49	49	48
(MIN)	58.6	57.8	1.8	1.8	0.2	59.9
W.LONG. (DEG)	126	126	126	126	126	126
(MIN)	18.9	15.1	15.7	18.8	20.5	22.6
DISTANCE NAUT. MI.	1.3	1.4	1.3	1.6	1.2	1.3
DEPTH (FATHOMS)	70- 70	63- 63	52- 52	62- 61	69- 69	74- 75
SEE FIGURE NO.						
SURFACE TEMP(DEG.C)	10.6	..	10.1	..	..	10.4
BOTTOM TEMP.(DEG.C)	7.4	..	7.8	..	..	7.7
TYPE OF GEAR	8	8	8	8	8	8
TOTAL CATCH (KG)	149	111	39	128	82	153
REMARKS	USABLE	USABLE	USABLE	USABLE	USABLE	USABLE

APPENDIX TABLE 1 CONTINUED

HAUL NO.	25	26	27	28	29	30
DATE	MAY 10	MAY 10	MAY 11	MAY 11	MAY 11	MAY 11
AREA	CLSD	CLSD	CLSD	CLSD	CLSD	CLSD
CATCH TOTAL (KG)	149	111	39	128	82	153
SHRIMP						
PINK (JORDANI)	..	..	..	T	T	T
NUM/KG	..	..	..	..	..	..
SIDESTRIPE	..	..	..	..	..	..
NUM/KG	..	..	..	..	..	..
OTHER SHRIMP	..	..	..	T	..	..
INVERTBRATES						
SEA CUCUMBER	..	..	..	..	..	..
OTHERS	T	..	..	T	T	T
FLATFISH						
DOVER SOLE	..	..	T	..	..	..
FLATHEAD SOLE	20	9	..	1	2	24
HALIBUT	..	..	..	..	..	..
SLENDER SOLE	T	9	1	4	2	6
TURBOT	..	..	..	..	T	T
OTHERS	T	6	8	4	T	21
ROCKFISH						
S. ALUTUS	..	..	..	..	..	..
S. FLAVIDUS	..	..	..	3	..	..
S. PAUCISPINIS	..	..	..	..	..	6
S. PINNIGER	..	..	..	..	..	2
S. PRORIGER	..	..	..	..	..	..
OTHERS	5	2	..	1	2	3
OTHER ROUNDFISH						
BLACKCOD	..	1	..	..	..	..
EULACHON	17	38	..	1	55	36
LINGCOD	10	11	13	19	20	6
PACIFIC TOMCOD	..	..	2	T	..	..
WALLEYE POLLOCK	2	21	..	1	1	2
OTHERS	T	T	T	2	..	..
SELACHI						
DOGFISH	94	14	14	92	..	44
OTHERS	..	..	1	..	..	3

APPENDIX TABLE 1 CONTINUED

HAUL NO.	31	32	33	34	35	36
DATE	MAY 11	MAY 11	MAY 11	MAY 11	MAY 11	MAY 12
AREA	CLSD	CLSD	CLSD	CLSD	CLSD	CLSD
TIME START (PST)	1250	1350	1505	1619	1724	713
DURATION(HR.MIN)	.30	.30	.24	.29	.30	.30
START N. LAT. (DEG)	48	49	49	49	49	49
(MIN)	59.2	1.5	1.9	2.1	3.7	2.8
W. LONG. (DEG)	126	126	126	126	126	126
(MIN)	24.6	27.2	31.5	24.1	22.1	18.3
DIRECTION (DEG.TRUE)	330	320	120	310	120	317
FINISH N. LAT. (DEG)	49	49	49	49	49	49
(MIN)	0.5	2.8	1.4	3.2	2.6	3.7
W.LONG. (DEG)	126	126	126	126	126	126
(MIN)	25.8	28.3	30.0	25.4	20.6	19.6
DISTANCE NAUT. MI.	1.5	1.5	1.1	1.4	1.5	1.3
DEPTH (FATHOMS)	80- 79	79- 77	84- 83	73- 73	66- 66	59- 59
SEE FIGURE NO.						
SURFACE TEMP(DEG.C)	..	..	..	10.6	..	..
BOTTOM TEMP.(DEG.C)	..	..	..	7.7	..	..
TYPE OF GEAR	8	8	8	8	8	8
TOTAL CATCH (KG)	111	153	251	21	82	39
REMARKS	USABLE	USABLE	USABLE	USABLE	USABLE	USABLE

APPENDIX TABLE 1 CONTINUED

HAUL NO.	31	32	33	34	35	36
DATE	MAY 11	MAY 11	MAY 11	MAY 11	MAY 11	MAY 12
AREA	CLSD	CLSD	CLSD	CLSD	CLSD	CLSD
CATCH TOTAL (KG)	111	153	251	21	82	89
SHRIMP						
PINK (JORDANI)	T	16	..	T	T	T
NUM/KG	..	198	..	..	..	..
SIDESTRIPE	..	..	..	..	..	..
NUM/KG	..	..	..	..	..	..
OTHER SHRIMP	..	..	..	..	..	..
INVERTBRATES						
SEA CUCUMBER	T	4	T	..	..	..
OTHERS	T	T	T	T	T	T
FLATFISH						
DOVER SOLE	1	T	..	T	..	..
FLATHEAD SOLE	64	6	1	..	25	T
HALIBUT	..	..	..	..	19	..
SLENDER SOLE	T	7	1	..	4	1
TURBOT	1	..	1	..	..	..
OTHERS	T	7	1	T	6	2
ROCKFISH						
S. ALUTUS	..	..	..	..	..	..
S. FLAVIDUS	..	..	..	..	1	..
S. PAUCISPINIS	..	..	..	..	..	..
S. PINNIGER	..	..	..	..	..	..
S. PRORIGER	..	..	..	..	..	..
OTHERS	T	1	1	..	1	..
OTHER ROUNDFISH						
BLACKCOD	2	..	..	..	..	..
EULACHON	25	30	190	21	10	65
LINGCOD	14	52	3	..	8	13
PACIFIC TOMCOD	..	..	..	..	..	1
WALLEYE POLLOCK	T	..	1	T	T	T
OTHERS	..	..	..	..	T	T
SELACHI						
DOGFISH	4	30	52	..	8	7
OTHERS	..	T	..	..	..	..

APPENDIX TABLE 1 CONTINUED

HAUL NO.	37	38	39	40	41	42
DATE	MAY 12	MAY 12	MAY 12	MAY 12	MAY 12	MAY 12
AREA	CLSD	CLSD	CLSD	CLSD	CLSD	CLSD
CATCH TOTAL (KG)	101	199	182	500	110	0
SHRIMP						
PINK (JORDANI)	..	T	63	270	..	..
NUM/KG	..	..	214	206	..	..
SIDESTRIPE	..	..	..	..	..	..
NUM/KG	..	..	..	..	..	..
OTHER SHRIMP	..	..	..	..	..	..
INVERTBRATES						
SEA CUCUMBER	..	..	..	6	T	..
OTHERS	T	T	1	1	T	..
FLATFISH						
DOVER SOLE	T	..	..	..	..	..
FLATHEAD SOLE	..	..	5	4	T	..
HALIBUT	..	..	..	..	..	..
SLENDER SOLE	T	2	5	4	1	..
TURBOT	..	..	2	..	..	..
OTHERS	6	3	3	..	1	..
ROCKFISH						
S. ALUTUS	..	..	..	..	..	..
S. FLAVIDUS	..	..	..	..	..	..
S. PAUCISPINIS	..	..	..	..	6	..
S. PINNIGER	..	..	..	..	..	..
S. PRORIGER	..	..	..	..	..	..
OTHERS	..	2	1	1	T	..
OTHER ROUNDFISH						
BLACKCOD	1	2	1	..	..	..
EULACHON	5	102	42	52	30	..
LINGCOD	9	9	24	53	21	..
PACIFIC TOMCOD	15	39	..	..	..	..
WALLEYE POLLOCK	..	..	1	..	1	..
OTHERS	T	11	1	..	T	..
SELACHI						
DOGFISH	65	29	33	109	50	..
OTHERS	..	..	..	..	..	..

APPENDIX TABLE 1 CONTINUED

HAUL NO.	37	38	39	40	41	42
DATE	MAY 12	MAY 12	MAY 12	MAY 12	MAY 12	MAY 12
AREA	CLSD	CLSD	CLSD	CLSD	CLSD	CLSD
TIME START (PST)	830	949	1110	1220	1335	1518
DURATION(HR.MIN)	.30	.30	.30	.30	.30	.31
START N. LAT. (DEG)	49	49	49	49	49	49
(MIN)	5.3	6.3	6.1	4.0	5.1	7.0
W. LONG. (DEG)	126	126	126	126	126	126
(MIN)	21.1	24.4	26.8	28.1	32.4	30.1
DIRECTION (DEG.TRUE)	330	146	140	295	110	310
FINISH N. LAT. (DEG)	49	49	49	49	49	49
(MIN)	6.5	5.0	4.8	5.2	4.0	8.2
W.LONG. (DEG)	126	126	126	126	126	126
(MIN)	22.2	23.0	25.4	30.0	30.8	31.8
DISTANCE NAUT. MI.	1.4	1.6	1.6	1.5	1.5	1.7
DEPTH (FATHOMS)	54- 54	60- 62	67- 67	72- 72	74- 76	69- 68
SEE FIGURE NO.						
SURFACE TEMP(DEG.C)	9.0	..	..	9.8	..	..
BOTTOM TEMP.(DEG.C)	7.6	..	..	7.2	..	..
TYPE OF GEAR	8	8	8	8	8	8
TOTAL CATCH (KG)	101	199	182	500	110	..
REMARKS	USABLE	USABLE	USABLE	USABLE	USABLE	UNUSABLE

APPENDIX TABLE 1 CONTINUED

HAUL NO.	43	44	45	46	47	48
DATE	MAY 12	MAY 12	MAY 13	MAY 13	MAY 13	MAY 14
AREA	CLSD	CLSD	CLSD	CLSD	CLSD	CLSD
TIME START (PST)	1620	1725	715	840	952	715
DURATION(HR.MIN)	.30	.30	.30	.30	.30	.30
START N. LAT. (DEG)	49	49	48	48	48	49
(MIN)	8.1	7.1	43.7	44.6	42.4	9.1
W. LONG. (DEG)	126	126	126	126	126	126
(MIN)	31.3	27.2	6.7	4.2	8.0	24.0
DIRECTION (DEG.TRUE)	130	315	152	151	330	141
FINISH N. LAT. (DEG)	49	49	48	48	48	49
(MIN)	7.0	8.2	42.2	43.4	43.5	7.9
W.LONG. (DEG)	126	126	126	126	126	126
(MIN)	29.8	28.6	5.4	3.2	9.0	22.5
DISTANCE NAUT. MI.	1.5	1.4	1.7	1.4	1.3	1.5
DEPTH (FATHOMS)	68- 69	65- 64	66- 65	57- 57	72- 73	52- 52
SEE FIGURE NO.						
SURFACE TEMP(DEG.C)	..	10.0	..	10.5	..	..
BOTTOM TEMP.(DEG.C)	..	7.5	..	7.8	..	..
TYPE OF GEAR	8	8	8	8	8	8
TOTAL CATCH (KG)	184	86	173	185	117	51
REMARKS	USABLE	USABLE	USABLE	USABLE	USABLE	USABLE

APPENDIX TABLE 1 CONTINUED

HAUL NO.	43	44	45	46	47	48
DATE	MAY 12	MAY 12	MAY 13	MAY 13	MAY 13	MAY 14
AREA	CLSD	CLSD	CLSD	CLSD	CLSD	CLSD
CATCH TOTAL (KG)	184	86	173	185	117	51
SHRIMP						
PINK (JORDANI)	T	T	T	3	..	..
NUM/KG	..	..	..	476	..	..
SIDESTRIPE	..	..	..	..	..	..
NUM/KG	..	..	..	..	..	..
OTHER SHRIMP	..	T	..	..	..	T
INVERTBRATES						
SEA CUCUMBER	..	..	..	..	..	..
OTHERS	T	T	5	2	T	T
FLATFISH						
DOVER SOLE	..	..	..	..	T	..
FLATHEAD SOLE	T	T	..	..	T	..
HALIBUT	..	..	..	..	..	..
SLENDER SOLE	1	3	..	..	..	T
TURBOT	..	..	..	T	T	..
OTHERS	T	T	3	T	T	9
ROCKFISH						
S. ALUTUS	..	..	..	..	..	..
S. FLAVIDUS	1	..	..	..	..	..
S. PAUCISPINIS	..	..	..	..	..	..
S. PINNIGER	..	1	..	..	2	..
S. PRORIGER	..	..	..	..	..	..
OTHERS	1	..	..	..	T	..
OTHER ROUNDFISH						
BLACKCOD	..	..	..	2	..	T
EULACHON	149	32	53	4	87	2
LINGCOD	2	7	7	20	3	14
PACIFIC TOMCOD	..	1	..	4	..	14
WALLEYE POLLOCK	7	1	61	T	5	..
OTHERS	..	T	10	2	4	T
SELACHI						
DOGFISH	23	35	30	148	16	12
OTHERS	..	6	4	..	..	..

APPENDIX TABLE 1 CONTINUED

HAUL NO.	49	50	51	52	53	54
DATE	MAY 14	MAY 14	MAY 14	MAY 14	MAY 14	MAY 14
AREA	CLSD	CLSD	CLSD	CLSD	CLSD	CLSD
TIME START (PST)	817	925	1026	1150	1255	1410
DURATION(HR.MIN)	.30	.30	.30	.30	.30	.30
START N. LAT. (DEG)	49	49	49	49	49	49
(MIN)	7.6	10.6	11.3	9.4	8.9	12.1
W. LONG. (DEG)	126	126	126	126	126	126
(MIN)	25.1	26.9	30.7	31.0	34.1	33.5
DIRECTION (DEG.TRUE)	320	307	145	320	320	315
FINISH N. LAT. (DEG)	49	49	49	49	49	49
(MIN)	8.7	11.4	10.0	10.6	10.2	13.2
W.LONG. (DEG)	126	126	126	126	126	126
(MIN)	26.4	28.6	29.3	32.4	35.5	35.1
DISTANCE NAUT. MI.	1.4	1.4	1.6	1.6	1.6	1.6
DEPTH (FATHOMS)	59- 58	54- 55	59- 59	65- 64	68- 68	62- 62
SEE FIGURE NO.						
SURFACE TEMP(DEG.C)	10.2	..	..	10.4	..	10.0
BOTTOM TEMP.(DEG.C)	7.7	..	..	7.7	..	7.4
TYPE OF GEAR	8	8	8	8	8	8
TOTAL CATCH (KG)	49	44	70	84	27	58
REMARKS	USABLE	USABLE	USABLE	USABLE	USABLE	USABLE

APPENDIX TABLE 1 CONTINUED

HAUL NO.	49	50	51	52	53	54
DATE	MAY 14	MAY 14	MAY 14	MAY 14	MAY 14	MAY 14
AREA	CLSD	CLSD	CLSD	CLSD	CLSD	CLSD
CATCH TOTAL (KG)	49	44	70	84	27	58
SHRIMP						
PINK (JORDANI)	..	..	..	T	T	15
NUM/KG	..	..	..	286	..	304
SIDESTRIPE	..	..	..	..	..	..
NUM/KG	..	..	..	..	..	..
OTHER SHRIMP	T	..	T	..	T	..
INVERTBRATES						
SEA CUCUMBER	..	..	..	6	1	..
OTHERS	T	T	T	..	T	1
FLATFISH						
DOVER SOLE	1	T	..	..	..	..
FLATHEAD SOLE	T	..	1	2	..	1
HALIBUT	..	..	..	..	..	..
SLENDER SOLE	3	T	..	4	1	2
TURBOT	..	T	1	..	..	..
OTHERS	7	5	3	2	T	1
ROCKFISH						
S. ALUTUS	..	..	..	..	..	..
S. FLAVIDUS	..	..	..	..	..	..
S. PAUCISPINIS	..	..	..	..	..	..
S. PINNIGER	5	..	..	..	..	..
S. PRORIGER	..	..	..	..	..	..
OTHERS	T	..	..	..	..	..
OTHER ROUNDFISH						
BLACKCOD	1	..	T	..	..	..
EULACHON	11	6	33	52	2	1
LINGCOD	..	20	5	9	4	4
PACIFIC TOMCOD	14	11	18	..	T	14
WALLEYE POLLOCK	..	..	T	1	T	11
OTHERS	T	2	T	..	T	T
SELACHI						
DOGFISH	7	..	8	8	19	8
OTHERS	..	..	1	..	T	..

APPENDIX TABLE 1 CONTINUED

HAUL NO.	55	56	57	58	59	60
DATE	MAY 14	MAY 14	MAY 14	MAY 15	MAY 15	MAY 15
AREA	CLSD	CLSD	CLSD	NCSD	NOSD	NOSD
TIME START (PST)	1520	1652	1815	716	835	950
DURATION(HR.MIN)	.30	.33	.30	.30	.30	.30
START N. LAT. (DEG)	49	49	49	49	49	49
(MIN)	13.6	12.9	14.5	13.6	17.7	18.1
W. LONG. (DEG)	126	126	126	126	126	126
(MIN)	32.4	37.0	37.5	52.3	53.4	57.0
DIRECTION (DEG.TRUE)	140	145	320	309	323	145
FINISH N. LAT. (DEG)	49	49	49	49	49	49
(MIN)	12.5	11.8	15.7	14.4	18.9	16.8
W.LONG. (DEG)	126	126	126	126	126	126
(MIN)	31.1	35.7	39.1	53.7	54.6	55.6
DISTANCE NAUT. MI.	1.4	1.5	1.6	1.2	1.4	1.7
DEPTH (FATHOMS)	57- 57	65- 65	63- 62	82- 85	80- 82	82- 93
SEE FIGURE NO.						
SURFACE TEMP(DEG.C)	..	..	10.5	10.7	..	..
BOTTOM TEMP.(DEG.C)	..	..	7.3	6.8	..	..
TYPE OF GEAR	8	8	8	8	8	8
TOTAL CATCH (KG)	52	75	64	78	150	68
REMARKS	USABLE	USABLE	USABLE	USABLE	USABLE	USABLE

APPENDIX TABLE 1 CONTINUED

HAUL NO.	55	56	57	58	59	60
DATE	MAY 14	MAY 14	MAY 14	MAY 15	MAY 15	MAY 15
AREA	CLSD	CLSD	CLSD	NCSD	NOSD	NOSD
CATCH TOTAL (KG)	52	75	64	78	150	68
SHRIMP						
PINK (JORDANI)	..	..	..	T	..	T
NUM/KG	..	..	..	..	..	..
SIDESTRIPE	..	..	..	..	..	..
NUM/KG	..	..	..	..	..	..
OTHER SHRIMP	..	..	T	..	..	..
INVERTBRATES						
SEA CUCUMBER	..	T	..	..	..	T
OTHERS	T	T	T	T	T	T
FLATFISH						
DOVER SOLE	..	..	T	..	..	..
FLATHEAD SOLE	..	T	..	T	2	2
HALIBUT	..	..	..	..	..	..
SLENDER SOLE	..	2	2	1	1	4
TURBOT	..	..	..	1	T	..
OTHERS	..	2	1	T	..	T
ROCKFISH						
S. ALUTUS	..	..	..	..	..	..
S. FLAVIDUS	..	..	..	..	..	1
S. PAUCISPINIS	..	..	..	..	..	..
S. PINNIGER	1	..	..	42	11	12
S. PRORIGER	..	..	..	..	..	..
OTHERS	..	..	T	T	1	13
OTHER ROUNDFISH						
BLACKCOD	..	..	1	..	..	1
EULACHON	..	66	28	10	37	28
LINGCOD	18	4	..	13	17	5
PACIFIC TOMCOD	2	..	2	T	..	..
WALLEYE POLLOCK	..	1	2	T	1	1
OTHERS	T	T	T	..	..	1
SELACHI						
DOGFISH	31	..	28	11	80	..
OTHERS	..	..	..	..	..	..

APPENDIX TABLE 1 CONTINUED

HAUL NO.	61	62	63	64	65	66
DATE	MAY 15	MAY 15	MAY 15	MAY 15	MAY 15	MAY 16
AREA	NOSD	NOSD	NOSD	NOSD	NOSD	NOSD
TIME START (PST)	1120	1340	1450	1649	1801	715
DURATION(HR.MIN)	.30	.30	.53	.30	.30	.30
START N. LAT. (DEG)	49	49	49	49	49	49
(MIN)	16.5	17.7	15.9	18.9	20.6	20.0
W. LONG. (DEG)	126	127	127	127	126	126
(MIN)	59.0	1.8	3.9	0.0	55.9	49.0
DIRECTION (DEG.TRUE)	320	145	320	44	180	315
FINISH N. LAT. (DEG)	49	49	49	49	49	49
(MIN)	17.4	15.9	16.8	19.9	19.2	21.1
W.LONG. (DEG)	127	127	127	126	126	126
(MIN)	0.1	0.8	5.2	58.3	56.1	50.7
DISTANCE NAUT. MI.	1.2	1.9	1.3	1.5	1.4	1.6
DEPTH (FATHOMS)	89- 85	87- 92	105-107	80- 80	82- 84	67- 67
SEE FIGURE NO.						
SURFACE TEMP(DEG.C)	..	11.4	..	..	..	10.9
BOTTOM TEMP.(DEG.C)	..	6.3	..	..	..	6.9
TYPE OF GEAR	8	8	8	8	8	8
TOTAL CATCH (KG)	170	173	191	77	426	43
REMARKS	USABLE	USABLE	USABLE	USABLE	USABLE	USABLE

APPENDIX TABLE 1 CONTINUED

HAUL NO.	61	62	63	64	65	66
DATE	MAY 15	MAY 15	MAY 15	MAY 15	MAY 15	MAY 16
AREA	NOSD	NOSD	NOSD	NOSD	NOSD	NOSD
CATCH TOTAL (KG)	170	173	191	77	426	43
SHRIMP						
PINK (JORDANI)	T	..	..	..	..	..
NUM/KG	..	..	..	..	..	..
SIDESTRIPE	..	..	..	..	T	..
NUM/KG	..	..	..	..	..	..
OTHER SHRIMP	..	T	T	..	..	..
INVERTBRATES						
SEA CUCUMBER	..	2	T	..	1	..
OTHERS	1	3	T	T	..	..
FLATFISH						
DOVER SOLE	T	1	7	T	..	..
FLATHEAD SOLE	4	1	1	..	100	..
HALIBUT	4	..	..	..	..	..
SLENDER SOLE	7	3	1	1	T	..
TURBOT	1	13	49	..	2	..
OTHERS	2	1	7	1	2	1
ROCKFISH						
S. ALUTUS	..	..	..	..	..	..
S. FLAVIDUS	..	..	..	2	39	..
S. PAUCISPINIS	2	12	3	..	216	..
S. PINNIGER	..	..	2	..	2	..
S. PRORIGER	..	..	3	..	..	10
OTHERS	T	6	21	..	7	1
OTHER ROUNDFISH						
BLACKCOD	1	3	T	1	..	..
EULACHON	3	..	..	26	17	14
LINGCOD	..	6	..	4	5	2
PACIFIC TOMCOD	..	..	..	..	..	T
WALLEYE POLLOCK	T	16	T	1	1	..
OTHERS	1	54	13	8	3	..
SELACHI						
DOGFISH	142	51	84	33	31	15
OTHERS	2	1	..	..	..	..

APPENDIX TABLE 1 CONTINUED

HAUL NO.	67	68	69	70	71	72
DATE	MAY 16	MAY 16	MAY 16	MAY 16	MAY 16	MAY 16
AREA	NOSD	NOSD	NOSD	NOSD	NOSD	NOSD
TIME START (PST)	837	1000	1130	1250	1400	1526
DURATION(HR.MIN)	.30	.30	.30	.30	.30	.31
START N. LAT. (DEG)	49	49	49	49	49	49
(MIN)	21.0	24.4	25.5	23.5	24.8	26.9
W. LONG. (DEG)	126	126	126	126	126	126
(MIN)	53.7	53.0	55.6	56.7	59.6	55.7
DIRECTION (DEG.TRUE)	321	325	135	310	145	320
FINISH N. LAT. (DEG)	49	49	49	49	49	49
(MIN)	22.2	25.6	24.1	24.7	23.2	27.9
W.LONG. (DEG)	126	126	126	126	126	126
(MIN)	55.3	54.3	54.5	57.9	59.3	57.7
DISTANCE NAUT. MI.	1.7	1.5	1.6	1.5	1.6	1.7
DEPTH (FATHOMS)	77- 77	67- 65	68- 70	75- 74	75- 77	63- 64
SEE FIGURE NO.						
SURFACE TEMP(DEG.C)	..	..	10.8	..	..	..
BOTTOM TEMP.(DEG.C)	..	..	7.0	..	..	..
TYPE OF GEAR	8	8	8	8	8	8
TOTAL CATCH (KG)	34	30	13	74	129	16
REMARKS	USABLE	USABLE	USABLE	USABLE	USABLE	USABLE

APPENDIX TABLE 1 CONTINUED

HAUL NO.	67	68	69	70	71	72
DATE	MAY 16	MAY 16	MAY 16	MAY 16	MAY 16	MAY 16
AREA	NOSD	NOSD	NOSD	NOSD	NOSD	NOSD
CATCH TOTAL (KG)	34	30	13	74	129	16
SHRIMP						
PINK (JORDANI)	T	T	T	8	63	..
NUM/KG	..	..	..	166	264	..
SIDESTRIPE	..	..	..	..	..	..
NUM/KG	..	..	..	..	..	..
OTHER SHRIMP	..	T	T	..	..	..
INVERTBRATES						
SEA CUCUMBER	T	..	..	..	1	..
OTHERS	1	T	T	T	T	T
FLATFISH						
DOVER SOLE	..	..	..	..	..	..
FLATHEAD SOLE	3	T	..	6	..	..
HALIBUT	..	..	..	..	..	..
SLENDER SOLE	T	T	T	1	..	..
TURBOT	..	..	T	..	T	T
OTHERS	..	T	1	T	..	2
ROCKFISH						
S. ALUTUS	..	..	..	..	..	..
S. FLAVIDUS	..	..	..	..	..	..
S. PAUCISPINIS	..	..	..	..	..	..
S. PINNIGER	..	..	..	..	..	..
S. PRORIGER	T	..	..	..	..	..
OTHERS	..	..	..	T	T	..
OTHER ROUNDFISH						
BLACKCOD	1	..	..	..	1	1
EULACHON	23	T	..	19	57	2
LINGCOD	..	3	3	7	2	..
PACIFIC TOMCOD	..	..	T	..	..	T
WALLEYE POLLOCK	T	..	4	1	..	1
OTHERS	..	..	T	7	..	T
SELACHI						
DOGFISH	6	27	5	25	5	10
OTHERS	..	..	..	T	..	..

APPENDIX TABLE 1 CONTINUED

HAUL NO.	73	74	75	76	77	78
DATE	MAY 16	MAY 17	MAY 17	MAY 17	MAY 17	MAY 17
AREA	NOSD	NOSD	NOSD	NOSD	NOSD	NOSD
TIME START (PST)	1642	715	840	947	1115	1220
DURATION(HR.MIN)	.30	.30	.30	.30	.30	.30
START N. LAT. (DEG)	49	49	49	49	49	49
(MIN)	28.0	27.6	30.0	30.5	30.1	28.2
W. LONG. (DEG)	126	127	126	127	127	127
(MIN)	59.3	3.1	58.5	2.7	5.1	6.1
DIRECTION (DEG.TRUE)	140	160	303	156	150	325
FINISH N. LAT. (DEG)	49	49	49	49	49	49
(MIN)	26.8	26.0	30.9	29.2	28.6	29.2
W.LONG. (DEG)	126	127	127	127	127	127
(MIN)	58.7	2.3	0.3	1.7	4.1	7.3
DISTANCE NAUT. MI.	1.4	1.7	1.5	1.5	1.6	1.3
DEPTH (FATHOMS)	68- 68	75- 77	63- 64	69- 70	74- 75	79- 79
SEE FIGURE NO.						
SURFACE TEMP(DEG.C)	10.8	10.3	..	..	9.8	..
BOTTOM TEMP.(DEG.C)	7.8	6.5	..	..	6.6	..
TYPE OF GEAR	8	8	8	8	8	8
TOTAL CATCH (KG)	54	141	30	153	242	51
REMARKS	USABLE	USABLE	USABLE	USABLE	USABLE	USABLE

APPENDIX TABLE 1 CONTINUED

HAUL NO.	73	74	75	76	77	78
DATE	MAY 16	MAY 17	MAY 17	MAY 17	MAY 17	MAY 17
AREA	NOSD	NOSD	NOSD	NOSD	NOSD	NOSD
CATCH TOTAL (KG)	54	141	30	153	242	51
SHRIMP						
PINK (JORDANI)	3	69	..	T	166	T
NUM/KG	258	234	..	..	249	..
SIDESTRIPE	..	..	..	..	..	..
NUM/KG	..	..	..	..	..	..
OTHER SHRIMP	..	..	..	..	..	..
INVERTBRATES						
SEA CUCUMBER	..	..	..	..	..	..
OTHERS	T	T	T	T	T	T
FLATFISH						
DOVER SOLE	..	..	..	..	..	T
FLATHEAD SOLE	..	..	..	..	..	..
HALIBUT	..	..	..	2	..	..
SLENDER SOLE	1	T	T	T	..	T
TURBOT	..	T	..	..	1	1
OTHERS	2	..	T	T	..	..
ROCKFISH						
S. ALUTUS	..	..	..	..	..	..
S. FLAVIDUS	..	..	..	..	..	..
S. PAUCISPINIS	..	..	..	6	..	..
S. PINNIGER	..	7	..	..	..	..
S. PRORIGER	..	..	..	..	..	..
OTHERS	T	..	T	..	..	..
OTHER ROUNDFISH						
BLACKCOD	..	..	..	..	1	T
EULACHON	32	45	4	32	54	30
LINGCOD	6	2	..	11	2	1
PACIFIC TOMCOD	..	..	T	..	..	..
WALLEYE POLLOCK	..	4	5	..	6	6
OTHERS	1	14	1	5	..	..
SELACHI						
DOGFISH	9	..	20	97	12	13
OTHERS	..	..	..	..	..	..

APPENDIX TABLE 1 CONTINUED

HAUL NO.	79	80	81	82	83	84
DATE	MAY 17	MAY 17	MAY 17	MAY 17	MAY 18	MAY 18
AREA	NOSD	NOSD	NOSD	NOSD	NEGI	NEGI
TIME START (PST)	1330	1450	1622	1732	925	1105
DURATION(HR.MIN)	.30	.32	.30	.30	.30	.30
START N. LAT. (DEG)	49	49	49	49	51	51
(MIN)	28.1	31.9	30.9	30.5	20.1	24.9
W. LONG. (DEG)	127	127	127	127	128	128
(MIN)	8.7	3.9	7.8	12.3	43.2	46.8
DIRECTION (DEG.TRUE)	320	315	315	315	348	170
FINISH N. LAT. (DEG)	49	49	49	49	51	51
(MIN)	29.3	33.0	32.1	31.5	21.6	23.2
W.LONG. (DEG)	127	127	127	127	128	128
(MIN)	10.1	5.4	9.4	13.8	43.4	46.5
DISTANCE NAUT. MI.	1.5	1.5	1.7	1.4	1.6	1.8
DEPTH (FATHOMS)	81- 82	67- 68	78- 79	86- 89	115-120	115-123
SEE FIGURE NO.						
SURFACE TEMP(DEG.C)	..	9.9	..	..	9.2	..
BOTTOM TEMP.(DEG.C)	..	6.9	..	..	6.8	..
TYPE OF GEAR	8	8	8	8	8	8
TOTAL CATCH (KG)	96	50	57	250	186	139
REMARKS	USABLE	USABLE	USABLE	USABLE	USABLE	USABLE

APPENDIX TABLE 1 CONTINUED

HAUL NO.	79	80	81	92	83	94
DATE	MAY 17	MAY 17	MAY 17	MAY 17	MAY 18	MAY 18
AREA	NOSD	NOSD	NOSD	NOSD	NEGI	NEGI
CATCH TOTAL (KG)	96	50	57	250	186	139
SHRIMP						
PINK (JORDANI)	..	..	T	..	..	2
NUM/KG	..	..	..	..	..	206
SIDESTRIPE	..	..	..	..	T	..
NUM/KG	..	..	..	..	..	..
OTHER SHRIMP	..	..	..	..	T	..
INVERTBRATES						
SEA CUCUMBER	..	..	..	..	..	..
OTHERS	T	T	T	..	T	T
FLATFISH						
DOVER SOLE	T	T	..	..	20	7
FLATHEAD SOLE	..	T	..	..	T	..
HALIBUT	3	1	..	25	..	..
SLENDER SOLE	..	T	..	..	..	..
TURBOT	1	T	..	6	45	14
OTHERS	..	T	1	2	T	..
ROCKFISH						
S. ALUTUS	..	..	..	..	91	94
S. FLAVIDUS	..	..	..	..	8	..
S. PAUCISPINIS	..	13	..	10	..	..
S. PINNIGER	..	..	..	39	..	..
S. PRORIGER	..	..	..	..	..	..
OTHERS	..	..	T	9	3	5
OTHER ROUNDFISH						
BLACKCOD	..	..	T	..	16	..
EULACHON	49	25	41	..	..	1
LINGCOD	16	7	..	77	..	..
PACIFIC TOMCOD	..	..	..	..	..	..
WALLEYE POLLOCK	5	T	2	..	1	4
OTHERS	..	1	11	2	2	..
SELACHI						
DOGFISH	22	3	2	80	..	..
OTHERS	..	..	..	..	..	12

APPENDIX TABLE 1 CONTINUED

HAUL NO.	85	86	87	88	89	90
DATE	MAY 18	MAY 18	MAY 18	MAY 18	MAY 18	MAY 19
AREA	NEGI	NEGI	NEGI	NEGI	NEGI	NWGI
TIME START (PST)	1215	1330	1440	1623	1735	712
DURATION(HR.MIN)	.30	.30	.32	.30	.30	.30
START N. LAT. (DEG)	51	51	51	51	51	52
(MIN)	24.2	23.5	22.8	27.4	26.6	2.8
W. LONG. (DEG)	128	128	128	128	128	128
(MIN)	43.3	40.2	36.7	40.6	37.2	53.8
DIRECTION (DEG.TRUE)	175	170	175	175	180	7
FINISH N. LAT. (DEG)	51	51	51	51	51	52
(MIN)	22.6	21.9	21.3	25.9	25.1	4.5
W.LONG. (DEG)	128	128	128	128	128	128
(MIN)	43.6	39.9	36.8	40.6	37.4	52.9
DISTANCE NAUT. MI.	1.8	1.6	1.5	1.6	1.5	1.7
DEPTH (FATHOMS)	120-123	119-117	115-112	108-116	115-118	95- 98
SEE FIGURE NO.						
SURFACE TEMP(DEG.C)	..	9.2	..	..	9.0	..
BOTTOM TEMP.(DEG.C)	..	6.5	..	..	6.0	..
TYPE OF GEAR	8	8	8	8	8	8
TOTAL CATCH (KG)	54	59	583	95	77	26
REMARKS	USABLE	USABLE	USABLE	USABLE	USABLE	USABLE

APPENDIX TABLE 1 CONTINUED

HAUL NO.	85	86	87	88	89	90
DATE	MAY 18	MAY 18	MAY 18	MAY 18	MAY 18	MAY 19
AREA	NEGI	NEGI	NEGI	NEGI	NEGI	NWGI
CATCH TOTAL (KG)	54	59	583	95	77	26
SHRIMP						
PINK (JORDANI)	8	T	..	3	12	11
NUM/KG	206	..	..	186	222	250
SIDESTRIPE	T	T	..	T	1	T
NUM/KG	63	..	..	..	57	57
OTHER SHRIMP	..	..	..	..	..	..
INVERTBRATES						
SEA CUCUMBER	..	..	..	..	..	..
OTHERS	T	T	..	T	T	T
FLATFISH						
DOVER SOLE	4	..	16	..	1	..
FLATHEAD SOLE	..	T	T	..	..	T
HALIBUT	..	..	..	..	..	..
SLENDER SOLE	..	T	..	..	..	T
TURBOT	30	54	257	61	21	7
OTHERS	T	..	..	..	..	..
ROCKFISH						
S. ALUTUS	..	4	292	21	1	T
S. FLAVIDUS	..	..	..	..	..	..
S. PAUCISPINIS	..	..	..	..	..	..
S. PINNIGER	..	..	2	..	2	..
S. PRORIGER	..	..	..	..	..	..
OTHERS	3	..	3	5	2	1
OTHER ROUNDFISH						
BLACKCOD	2	..	9	2	..	..
EULACHON	T	..	..	2	10	T
LINGCOD	..	..	..	..	..	..
PACIFIC TOMCOD	..	..	..	..	..	..
WALLEYE POLLOCK	1	..	..	..	..	..
OTHERS	..	..	..	1	..	..
SELACHI						
DOGFISH	5	..	4	..	26	7
OTHERS	T	1	..	T	1	..

APPENDIX TABLE 1 CONTINUED

HAUL NO.	91	92	93	94	95	96
DATE	MAY 19	MAY 19	MAY 19	MAY 19	MAY 19	MAY 19
AREA	NWGI	NWGI	NWGI	NWGI	NWGI	NWGI
CATCH TOTAL (KG)	87	203	68	158	95	287
SHRIMP						
PINK (JORDANI)	5	5	4	13	T	T
NUM/KG	228	212	222	212	..	..
SIDESTRIPE	T	T	..	..	..	..
NUM/KG	..	..	..	..	..	..
OTHER SHRIMP	T	..	..	..	..	T
INVERTBRATES						
SEA CUCUMBER	..	4	T	..	..	3
OTHERS	T	2	T	T	..	5
FLATFISH						
DOVER SOLE	..	..	..	..	..	T
FLATHEAD SOLE	5	6	3	1	1	3
HALIBUT	..	6	7	21	12	9
SLENDER SOLE	..	..	..	..	..	..
TURBOT	32	62	27	35	7	142
OTHERS	..	..	..	..	T	1
ROCKFISH						
S. ALUTUS	1	41	1	..	..	..
S. FLAVIDUS	..	..	..	..	..	..
S. PAUCISPINIS	..	..	..	..	..	..
S. PINNIGER	..	..	..	2	..	..
S. PRORIGER	..	..	..	..	..	51
OTHERS	T	8	..	T	..	7
OTHER ROUNDFISH						
BLACKCOD	2	7	18	21	5	..
EULACHON	T	T	T	3	20	..
LINGCOD	..	..	..	..	..	44
PACIFIC TOMCOD	..	..	..	..	..	..
WALLEYE POLLOCK	..	..	..	..	T	..
OTHERS	T	T	T	3	6	T
SELACHI						
DOGFISH	41	55	8	59	44	17
OTHERS	1	7	..	..	..	5

APPENDIX TABLE 1 CONTINUED

HAUL NO.	91	92	93	94	95	96
DATE	MAY 19	MAY 19	MAY 19	MAY 19	MAY 19	MAY 19
AREA	NWGI	NWGI	NWGI	NWGI	NWGI	NWGI
TIME START (PST)	930	938	1115	1230	1340	1455
DURATION(HR.MIN)	.30	.30	.30	.30	.30	.15
START N. LAT. (DEG)	52	52	51	51	51	51
(MIN)	2.1	2.2	58.9	58.2	55.6	54.2
W. LONG. (DEG)	128	128	128	128	128	128
(MIN)	48.3	45.4	47.7	42.7	43.0	39.3
DIRECTION (DEG.TRUE)	188	166	145	150	150	150
FINISH N. LAT. (DEG)	52	52	51	51	51	51
(MIN)	0.7	0.8	57.5	56.7	54.1	53.6
W.LONG. (DEG)	128	128	128	128	128	128
(MIN)	48.6	44.8	46.7	41.8	41.8	38.7
DISTANCE NAUT. MI.	1.5	1.5	1.5	1.6	1.6	.9
DEPTH (FATHOMS)	97- 99	99- 97	96- 91	88- 85	82- 81	80- 78
SEE FIGURE NO.						
SURFACE TEMP(DEG.C)	8.9	..	..	8.9	..	8.8
BOTTOM TEMP.(DEG.C)	7.6	..	..	6.6	..	6.7
TYPE OF GEAR	8	8	8	8	8	8
TOTAL CATCH (KG)	87	203	68	158	95	297
REMARKS	USABLE	USABLE	USABLE	USABLE	USABLE	SNAG USABLE

APPENDIX TABLE 1 CONTINUED

HAUL NO.	97	98	99
DATE	MAY 20	MAY 20	MAY 20
AREA	NEGI	NEGI	NEGI
TIME START (PST)	718	828	941
DURATION(HR.MIN)	.30	.30	.30
START N. LAT. (DEG)	51	51	51
(MIN)	30.1	28.8	27.9
W. LONG. (DEG)	128	128	128
(MIN)	34.3	31.4	28.0
DIRECTION (DEG.TRUE)	174	182	186
FINISH N. LAT. (DEG)	51	51	51
(MIN)	28.8	27.2	26.4
W.LONG. (DEG)	128	128	128
(MIN)	34.4	31.5	28.2
DISTANCE NAUT. MI.	1.5	1.7	1.5
DEPTH (FATHOMS)	103-108	109-111	107-109
SEE FIGURE NO.			
SURFACE TEMP(DEG.C)	8.9	8.9	9.6
BOTTOM TEMP.(DEG.C)	6.2	6.2	6.3
TYPE OF GEAR	8	8	8
TOTAL CATCH (KG)	139	57	119
REMARKS	USABLE	USABLE	USABLE

APPENDIX TABLE 1 CONTINUED

HAUL NO.	97	98	99
DATE	MAY 20	MAY 20	MAY 20
AREA	NEGI	NEGI	NEGI
CATCH TOTAL (KG)	139	57	119
SHRIMP			
PINK (JORDANI)	8	16	46
NUM/KG	182	232	228
SIDESTRIPE	T	T	T
NUM/KG	..	50	53
OTHER SHRIMP	..	..	..
INVERTEBRATES			
SEA CUCUMBER	..	T	..
OTHERS	T	1	T
FLATFISH			
DOVER SOLE	21	..	1
FLATHEAD SOLE	5	1	T
HALIBUT	..	..	..
SLENDER SOLE	T	T	T
TURBOT	64	14	16
OTHERS	..	..	..
ROCKFISH			
S. ALUTUS	13	1	13
S. FLAVIDUS	..	..	..
S. PAUCISPINIS	..	..	..
S. PINNIGER	..	..	..
S. PRORIGER	T	..	..
OTHERS	T	11	25
OTHER ROUNDFISH			
BLACKCOD	10	..	..
EULACHON	T	4	6
LINGCOD	..	..	..
PACIFIC TOMCOD	..	..	..
WALLEYE POLLOCK	1	..	..
OTHERS	T	..	T
SELACHI			
DOGFISH	8	7	10
OTHERS	9	2	2

FOOTNOTES

AREA:	CLSD = Tofino Ground NOSD = Nootka Ground NEGI = N.E. Goose Island Gully, Queen Charlotte Sound NWGI = N.W. Goose Island Gully, Queen Charlotte Sound
TIME START:	Pacific Standard Time
TYPE OF GEAR:	8 = National Marine Fisheries 61 ft. shrimp sampling trawl
T:	Trace
t:	Metric tonne = 2204 pounds
M^2:	Square Nautical Mile